This following listing of the currently pending claims is provided for the examiner's convenience.

Listing of Claims:

1. (previously presented): A communication system comprising:

(a) an automatic gain control (AGC) circuit which receives and adjusts the gain of a communication signal, the AGC circuit being controlled by a gain control signal;

(b) an insertion phase variation compensation module which continuously counteracts the effects of phase offsets introduced into the communication signal by the AGC circuit, based on the gain control signal;

(c) a look up table (LUT) electrically coupled to the insertion phase variation compensation module; and

(d) a modem electrically coupled to the AGC circuit and the LUT, wherein the modem receives complex in-phase (I) and quadrature (Q) signal components from the insertion phase variation compensation module, the modem outputs the gain control signal, based on the complex I and Q signal components, to the AGC circuit and the LUT, and the LUT provides estimates of the phase offsets to the insertion phase variation compensation module as a function of the gain control signal that the LUT receives from the modem.

2. (previously presented): The communication system of claim 1 further comprising:

(e) a receiver which receives the communication signal from the AGC circuit and outputs analog I and Q signal components; and

(f) an analog to digital converter (ADC) which receives and converts the analog I and Q signal components to digital I and Q signal components.

3. (previously presented): The communication system of claim 2 wherein the insertion phase variation compensation module receives the digital I and Q signal components from the ADC and outputs the complex I and Q signal components which have different phase characteristics than the digital I and Q components.

4. (previously presented): The communication system of claim 1 wherein the modem comprises a processor which calculates how much power is input to the ADC.

5. (original): The communication system of claim 2 wherein the insertion phase variation compensation module receives the digital I and Q components from the ADC and alters the phase characteristics of the digital I and Q components as a function of the gain control signal.

Claim 6 (canceled)

7. (previously presented): The communication system of claim 1 wherein the provided estimates of the phase offsets include a Sin function and a Cos function of a phase offset, x.

8. (previously presented): The communication system of claim 7 wherein the insertion phase variation compensation module has a real, Re, input associated with a digital in-phase (I) signal component and an imaginary, Im, input associated with a quadrature (Q) signal component and, based on the estimates of

the phase offsets provided by the LUT, the insertion phase variation compensation module outputs an I signal component having a phase that is adjusted in accordance with the following function: (Cos(x) × Re) - (Sin(x) × Im).

9. (previously presented): The communication system of claim 7 wherein the insertion phase variation compensation module has a real input, Re, associated with a digital in-phase (I) signal component and an imaginary input, Im, associated with a quadrature (Q) signal component and, based on the estimates of the phase offsets provided by the LUT, the insertion phase variation compensation module outputs a Q signal component having a phase that is adjusted in accordance with the following function: (Sin(x) × Re) + (Cos(x) × Im).

10. (previously presented): A wireless transmit/receive unit (WTRU) comprising:

(a) an automatic gain control (AGC) circuit which receives and adjusts the gain of a communication signal, the AGC circuit being controlled by a gain control signal;

(b) an insertion phase variation compensation module which continuously counteracts the effects of phase offsets introduced into the communication signal by the AGC circuit, based on the gain control signal;

(c) a look up table (LUT) electrically coupled to the insertion phase variation compensation module; and

(d) a modem electrically coupled to the AGC circuit and the LUT, wherein the modem receives complex in-phase (I) and quadrature (Q) signal components from the insertion phase variation compensation module, the modem outputs the gain control signal, based on the complex I and Q signal components, to the AGC circuit

and the LUT, and the LUT provides estimates of the phase offsets to the insertion phase variation compensation module as a function of the gain control signal that the LUT receives from the modem.

11. (previously presented): The WTRU of claim 10 further comprising:

(e) a receiver which receives the communication signal from the AGC circuit and outputs analog I and Q signal components; and

(f) an analog to digital converter (ADC) which receives and converts the analog I and Q signal components to digital I and Q signal components.

12. (previously presented): The WTRU of claim 11 wherein the insertion phase variation compensation module receives the digital I and Q signal components from the ADC and outputs the complex I and Q signal components which have different phase characteristics than the digital I and Q components.

13. (previously presented): The WTRU of claim 10 wherein the modem comprises a processor which calculates how much power is input to the ADC.

14. (original): The WTRU of claim 11 wherein the insertion phase variation compensation module receives the digital I and Q components from the ADC and alters the phase characteristics of the digital I and Q components as a function of the gain control signal.

Claim 15 (canceled)

16. (previously presented): The WTRU of claim 10 wherein the provided estimates of the phase offsets include a Sin function and a Cos function of a phase offset, x.

17. (previously presented): The WTRU of claim 16 wherein the insertion phase variation compensation module has a real, Re, input associated with a digital in-phase (I) signal component and an imaginary, Im, input associated with a quadrature (Q) signal component and, based on the estimates of the phase offsets provided by the LUT, the insertion phase variation compensation module outputs an I signal component having a phase that is adjusted in accordance with the following function: (Cos(x) × Re) - (Sin(x) × Im).

18. (previously presented): The WTRU of claim 16 wherein the insertion phase variation compensation module has a real input, Re, associated with a digital in-phase (I) signal component and an imaginary input, Im, associated with a quadrature (Q) signal component and, based on the estimates of the phase offsets provided by the LUT, the insertion phase variation compensation module outputs a Q signal component having a phase that is adjusted in accordance with the following function: (Sin(x) × Re) + (Cos(x) × Im).

19. (previously presented): An integrated circuit (IC) comprising:

(a) an automatic gain control (AGC) circuit which receives and adjusts the gain of a communication signal, the AGC circuit being controlled by a gain control signal;

(b) an insertion phase variation compensation module which continuously counteracts the effects of phase offsets introduced into the communication signal by the AGC circuit, based on the gain control signal;

(c) a look up table (LUT) electrically coupled to the insertion phase variation compensation module; and

(d) a modem electrically coupled to the AGC circuit and the LUT, wherein the modem receives complex in-phase (I) and quadrature (Q) signal components from the insertion phase variation compensation module, the modem outputs the gain control signal, based on the complex I and Q signal components, to the AGC circuit and the LUT, and the LUT provides estimates of the phase offsets to the insertion phase variation compensation module as a function of the gain control signal that the LUT receives from the modem.

20. (previously presented): The IC of claim 19 further comprising:

(e) a receiver which receives the communication signal from the AGC circuit and outputs analog I and Q signal components; and

(f) an analog to digital converter (ADC) which receives and converts the analog I and Q signal components to digital I and Q signal components.

21. (previously presented): The IC of claim 20 wherein the insertion phase variation compensation module receives the digital I and Q signal components from the ADC and outputs the complex I and Q signal components which have different phase characteristics than the digital I and Q components.

22. (previously presented): The IC of claim 19 wherein the modem comprises a processor which calculates how much power is input to the ADC.

23. (original): The IC of claim 20 wherein the insertion phase variation compensation module receives the digital I and Q components from the ADC and alters the phase characteristics of the digital I and Q components as a function of the gain control signal.

Claim 24 (canceled)

25. (previously presented): The IC of claim 19 wherein the provided estimates of the phase offsets include a Sin function and a Cos function of a phase offset, x.

26. (previously presented): The IC of claim 25 wherein the insertion phase variation compensation module has a real, Re, input associated with a digital in-phase (I) signal component and an imaginary, Im, input associated with a quadrature (Q) signal component and, based on the estimates of the phase offsets provided by the LUT, the insertion phase variation compensation module outputs an I signal component having a phase that is adjusted in accordance with the following function: (Cos(x) × Re) - (Sin(x) × Im).

27. (previously presented): The IC of claim 25 wherein the insertion phase variation compensation module has a real input, Re, associated with a digital in-phase (I) signal component and an imaginary input, Im, associated with a quadrature (Q) signal component and, based on the estimates of the phase offsets provided by the LUT, the insertion phase variation compensation module outputs a

Q signal component having a phase that is adjusted in accordance with the following function: (Sin(x) × Re) + (Cos(x) × Im).

28. (previously presented): In a communication system including an automatic gain control (AGC) circuit, a modem, a look up table (LUT) and an insertion phase variation compensation module, a method of continuously counteracting the effects of phase offsets introduced into a communication signal by the AGC circuit, the method comprising:

(a) providing a gain control signal to the AGC circuit;

(b) the AGC circuit receiving and adjusting the gain of a communication signal in response to the gain control signal, the adjustment causing a phase offset to be introduced into the communication signal;

(c) providing an estimate of the phase offset to the insertion phase variation compensation module as a function of the gain control signal;

(d) the modem receiving complex in-phase (I) and quadrature (Q) signal components from the insertion phase variation compensation module;

(e) the modem outputting the gain control signal to the AGC circuit and the LUT based on the complex I and Q signal components;

(f) the LUT providing an estimate of the phase offset to the insertion phase variation compensation module as a function of the gain control signal that the LUT receives from the modem to adjust the phase of the communication signal; and

(g) repeating steps (a) - (f).

29. (previously presented): The method of claim 28 wherein the provided estimate of the phase offset includes a Sin function and a Cos function of a phase offset, x.

30. (previously presented): The method of claim 29 wherein the insertion phase variation compensation module has a real, Re, input associated with a digital in-phase (I) signal component and an imaginary, Im, input associated with a quadrature (Q) signal component and, based on the estimate of the phase offset provided by the LUT, the insertion phase variation compensation module outputs an I signal component having a phase that is adjusted in accordance with the following function: (Cos(x) × Re) - (Sin(x) × Im).

31. (previously presented): The method of claim 29 wherein the insertion phase variation compensation module has a real input, Re, associated with a digital in-phase (I) signal component and an imaginary input, Im, associated with a quadrature (Q) signal component and, based on the estimate of the phase offset provided by the LUT, the insertion phase variation compensation module outputs a Q signal component having a phase that is adjusted in accordance with the following function: (Sin(x) × Re) + (Cos(x) × Im).